

Limitations of Field Investigations: Etiology and Food Vehicle Not Determined for a Substantial proportion of Foodborne Outbreaks in FoodNet, 1998-1999.

Jones T, Imhoff B, Deneen V, Samuel M, Mshar R, Gibbs-McCombs K, Kamer T, Cambridge M, Slutsker L, and EIP FoodNet Working Group

Background Foodborne diseases infect an estimated 76 million Americans each year. Most of these infections are sporadic, and not known to be associated with other cases. Nevertheless, hundreds of foodborne disease outbreaks occur each year. Investigation of outbreaks can be an opportunity to explore the epidemiology of foodborne disease and develop preventive interventions.

Methods: We analyzed foodborne disease outbreaks (FBDOs) reported to the CDC's Foodborne Diseases Active Surveillance Network (FoodNet) and occurring in 1998 or 1999. Preliminary analyses were performed on data reported as of January 12, 2000. In 1998 seven states comprised FoodNet, with 20.7 million persons (7.6% of the U.S. population) under surveillance. Outbreaks occurring in counties under active surveillance in FoodNet throughout the two-year period were included. Data collected included information on numbers of patients involved, etiologic agent, and implicated foods.

Results: During the surveillance period, 427 FBDOs were reported in the surveillance area, involving 7987 patients. The median number of ill persons in the reported outbreaks was 6. Of reported outbreaks, 297 (70%) had no identified etiologic organism; 48 (11%) were due to *Salmonella*, 33 (8%) to caliciviruses, 9 (2%) to *Shigella*, 6 (1%) to scombroid poisoning, 5 (1%) to *C. perfringens*, 4 (1%) to *E. coli* O157:H7, and 25 to other etiologies. A suspected food vehicle was identified in 222 (52%) of the outbreaks. Of reported outbreaks, 255 (60%) were restaurant-associated. Of reported FBDOs, 167 (39%) involved 10 or more persons. Of FBDOs with 10 or more persons, 73 (44%) had an identified etiology and 96 (57%) had a reported vehicle. The rate of reported FBDOs in FoodNet sites during this period was 10.3 per million population per year. The 70 reported FBDOs involving bacterial pathogens included in routine FoodNet surveillance included 2219 patients; during the same period, FoodNet sites reported 16,239 laboratory-confirmed cases of bacterial foodborne illness.

Conclusion: FBDOs account for a small proportion of the cases of bacterial foodborne disease reported to FoodNet. A substantial proportion of reported FBDOs have neither an etiology nor vehicle identified. Outbreaks are likely underreported, and many may not be investigated. Greater diagnostic and epidemiologic capacity is necessary to improve successful investigation of FBDOs. While much foodborne illness is sporadic, outbreak investigations are more likely to identify an etiology or vehicle, and better understanding their epidemiology may allow improved preventive interventions. The subset of outbreaks with no etiology identified also presents a potential opportunity to discover new and emerging diarrheal pathogens.

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